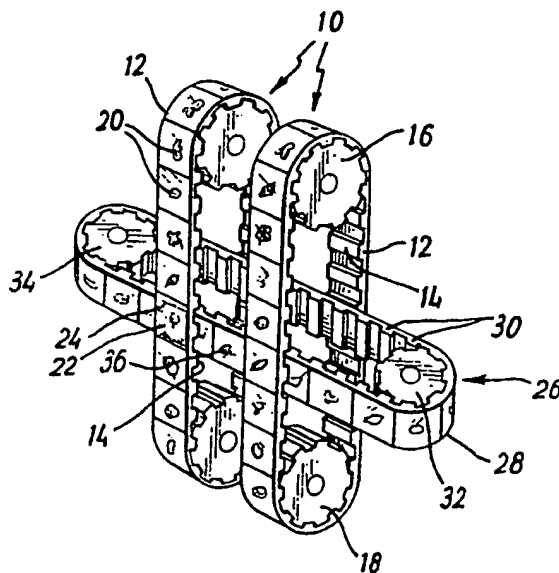


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(21) International Application Number: PCT/GB92/01473 (22) International Filing Date: 7 August 1992 (07.08.92) (30) Priority data: 9116997.9 7 August 1991 (07.08.91) GB (71) Applicant (for all designated States except US): PROJECT DESIGN TECHNOLOGY LIMITED [GB/GB]; Unit 51, Langley Mill Industrial Estate, Wesley Street, Langley Mill, Nottingham NG16 4AL (GB). (72) Inventor; and (75) Inventor/Applicant (for US only) : LUDLOW, Roy, Albert, George [GB/GB]; Project Design Technology Limited, Unit 51, Langley Mill Industrial Estate, Wesley Street, Langley Mill, Nottingham NG16 4AL (GB).		(74) Agent: DREVER, Ronald, Fergus; Swindell & Pearson, 48 Friar Gate, Derby DE1 1GY (GB). (81) Designated States: AU, CA, GB, JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE). Published <i>With international search report.</i>

(54) Title: IMPROVED GAMING MACHINE**(57) Abstract**

A gaming machine has a set of three or four symbol carriers (10) in the form of endless belts (12) movable by stepping motors in parallel, endless paths which are laterally spaced apart. Each belt (12) provides a plurality of fruit symbols (20) and a transparent section (22) in substitution for one of the symbols. Another symbol carrier (26) in the form of an endless belt (28) with front symbols (36) is positioned to travel in an endless path at substantially right angles to the paths of the belts (12). When the belts (12 and 28) are randomly stopped, one of the symbols (36) is directly behind a respective one of the belts (12) at a viewing location. Symbols on the belt (28) can be visible through any aligned transparent sections of the belts (12), thereby providing an extra game facility.

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Improved Gaming Machine

This invention is concerned with improvements in or relating to gaming machines, i.e. machines for playing games of chance. One commonly known type of gaming machine is a fruit machine.

According to the present invention there is provided a gaming machine comprising a plurality of first carriers each having a series of symbols thereon, the first carriers being movably arranged and being adapted to be randomly stopped, characterised in that at least one of the first carriers has at least one non-symbol carrying section, the first carriers being adapted to be randomly stopped so as to present randomly selected ones of the symbols or the non-symbol carrying section at a viewing location, and at least one second carrier having a series of symbols thereon, being movably arranged and being adapted to be randomly stopped so as to make available randomly selected ones of the symbols at the viewing location, whereby at least one of the selected symbols of the second carrier is visible at the viewing location when the non-symbol carrying section of said one first carrier is presented at the viewing location.

Preferably also each of the first carriers has a non-symbol carrying section, and advantageously each of

the first carriers has a plurality of non-symbol carrying sections. The or each of the non-symbol carrying sections may be formed with a transparent material.

Each of the first carriers may be provided with means for moving same in an endless path which includes a length where the carrier travels in a substantially straight path. Each of the path lengths may correspond to at least three sections. The second carrier may include means for moving same in an endless path including a length where the carrier travels in a substantially straight path.

Preferably the first carriers are arranged to be movable in substantially parallel paths and the second carrier is arranged to be movable in a path at substantially right angles thereto.

The path length of the second carrier may correspond in length to a sufficient number of sections to enable a symbol of the second carrier to be presented in the straight path behind each of the first carriers.

Each of the first and second carriers may comprise an endless belt which is wrapped around a pair of sprockets, one of which is driven. Each of said one sprockets may be driven by a stepping motor.

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The symbols on each of the first and second carriers may be provided on a band of flexible material which is located on the outer surface of the respective endless belt. The band of symbols may be fixed to the respective belt, for example by glueing. Further each belt may contain coded information.

An embodiment of the present invention will now be described by way of example only with reference to the accompanying drawing, the single figure of which is a diagrammatic perspective view of part of a symbol carrier mechanism for a gaming machine according to the invention.

Referring to the drawing, a gaming machine comprises a set of three or four first symbol carriers 10 which are capable of displaying, at a viewing location on the machine, a read-out line which is a combination of three or four symbols, only two of the first carriers 10 being shown in the drawing.

The carriers 10 move in parallel, endless paths which are laterally spaced apart, each by way of an endless belt 12 of any suitable flexible material, an inner surface of which is formed with a configuration of teeth 14. Each belt 12 is wrapped around a pair of sprocket wheels 16, 18 and the wheel 16 is arranged to be driven by a stepping motor (not shown) of a conventional

type. In the gaming machine, the sprockets 16, 18 of each belt 12 are arranged substantially one above the other such that the width of the carrier mechanism is considerably reduced in the machine relative to conventional reel mechanisms of the rotatable type.

For each belt 12, a plurality of symbols 20, representative of different types of fruit, are formed on a band of a flexible material, the band also incorporating a transparent section 22 in substitution for one of the symbols. The band is mounted on the outer surface of a respective one of the belts 12 by any suitable means such as glueing, such that the symbols 20 are equispaced around the belt 12 and the transparent section 22 extends across an aperture 24 in the belt 12. The gaming machine is adapted to randomly stop each of the belts 12 and sense the position of each belt when stopped in accordance with any known arrangement.

A gaming machine incorporating the carrier mechanism is provided with a viewing window of any desired dimension. Certain types of gaming machines incorporate a "nudge" feature whereby, after a play, the player may be offered randomly the possibility of nudging or moving one or more of the reels by a single position, so as to change the combination of symbols in the read-out line. If a machine with such a feature requires to show a

single symbol above and below the read-out line, then the viewing window will be such as to substantially correspond in height to the length of three symbols 20 on the belts 12, hence three symbols 20 are always shown through the viewing window without any distortion of the symbols and the player is unable to see any other symbols. This therefore improves the machine from the aesthetic point of view and also ensures that the player has to play the machine as intended. It will be appreciated that if more than three symbols are desired to be seen, the dimension of the viewing window will be adjusted accordingly. The sprockets 16, 18 are spaced apart by a distance greater than the length of the belts 12 carrying three of the symbols 20.

The gaming machine includes another symbol carrier 26 of similar configuration to the carriers 10, i.e. comprising an endless belt 28 with teeth 30 and wrapped around a pair of sprocket wheels 32, 34, the wheel 32 being arranged to be driven by a stepping motor (not shown) of a conventional type. The belt 28 is positioned in the gaming machine to travel in an endless path at substantially right angles to the parallel paths of the belts 12.

A plurality of symbols 36, representative of different types of fruit, are formed on a band of a

flexible material which is mounted on the outer surface of the belt 28 by any suitable means such as glueing, such that the symbols 36 are equispaced around the belt 28. The movement of the latter is coordinated with the movement of the belts 12 whereby, when the belt 26 is randomly stopped, one of the symbols 36 is directly behind a respective one of the belts 12, the machine being able to sense the position of the belt 28 when stopped.

The orientation of the symbols 36 on the belt 28 is such that, if one or more of the belts 12 is stopped with the transparent section thereof in the read-out line, the respective symbol on the belt 28 is visible through the transparent section and appears in the same orientation as the symbols on the belt 12. The additional carrier 26 thereby provides an extra game facility, and the arrangement of symbols on the carrier 24 can be such as to provide an increased chance of the player having a winning combination if the transparent sections of the carriers 10 simultaneously appear in the read-out line. Also it will be appreciated that the carrier 26 may be provided with a randomly available nudge feature, which further increases the number of features of the game.

As well as providing an enhanced game for the player, the use of reel mechanism as described above

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enables the width of the gaming machine to be reduced to whatever dimension is desirable, this resulting in a much more compact machine than that previously available, and a machine which can be easily handled and can fit into locations which are presently inaccessible, as far as conventional gaming machines are concerned. The machine incorporating the carrier mechanism can also be so manufactured as to be capable of being mounted on a fixture such as a wall.

Various modifications may be made without departing from the invention. It will be appreciated, for example, that only one of the carriers 10 may be provided with one or more transparent sections, or that each of the carriers 10 may be provided with more than one transparent section. Viewing of the symbols on the carrier 26 may be achieved by providing for other than the transparent sections of the carriers 10 as described, and also the symbols may be applied to the carriers in any other suitable fashion. The belts may be provided with apertures instead of toothed inner surfaces, with sprockets engagable in the apertures for driving of the belts.

Claims:-

1. A gaming machine comprising a plurality of first carriers each having a series of symbols thereon, the first carriers being movably arranged and being adapted to be randomly stopped, characterised in that at least one of the first carriers has at least one non-symbol carrying section, the first carriers being adapted to be randomly stopped so as to present randomly selected ones of the symbols or the non-symbol carrying section at a viewing location, and at least one second carrier having a series of symbols thereon, being movably arranged and being adapted to be randomly stopped so as to make available randomly selected ones of the symbols at the viewing location, whereby at least one of the selected symbols of the second carrier is visible at the viewing location when the non-symbol carrying section of said one first carrier is presented at the viewing location.

2. A gaming machine according to Claim 1, characterised in that each of the first carriers has a non-symbol carrying section.

3. A gaming machine according to Claim 1 or 2, characterised in that each of the first carriers has a plurality of non-symbol carrying sections.

4. A gaming machine according to any of the preceding Claims, characterised in that the or each of the non-symbol carrying sections is formed with a transparent material.

5. A gaming machine according to any of the preceding Claims, characterised in that each of the first carriers is provided with means for moving same in an endless path which includes a length where the carrier travels in a substantially straight path.

6. A gaming machine according to Claim 5, characterised in that each path length corresponds to at least three sections.

7. A gaming machine according to any of the preceding Claims, characterised in that the second carrier includes means for moving same in an endless path including a length where the carrier travels in a substantially straight path.

8. A gaming machine according to any of the preceding Claims, characterised in that the first carriers are arranged to be movable in substantially parallel paths and the second carrier is arranged to be movable in a path at substantially right angles thereto.

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9. A gaming machine according to Claim 8, when dependent on Claim 7, characterised in that the path length of the second carrier corresponds in length to a sufficient number of sections to enable a symbol of the second carrier to be presented in the straight path behind each of the first carriers.

10. A gaming machine according to any of the preceding Claims, characterised in that each of the first and second carriers comprises an endless belt which is wrapped around a pair of sprockets, one of which is driven.

11. A gaming machine according to Claim 10, characterised in that each of the said one sprockets is driven by a stepping motor.

12. A gaming machine according to Claim 10 or 11, characterised in that the symbols on each of the first and second carriers are provided on a band of flexible material which is located on the outer surface of the respective endless belt.

13. A gaming machine according to Claim 12, characterised in that the band of symbols is fixed to the respective belt by glueing.

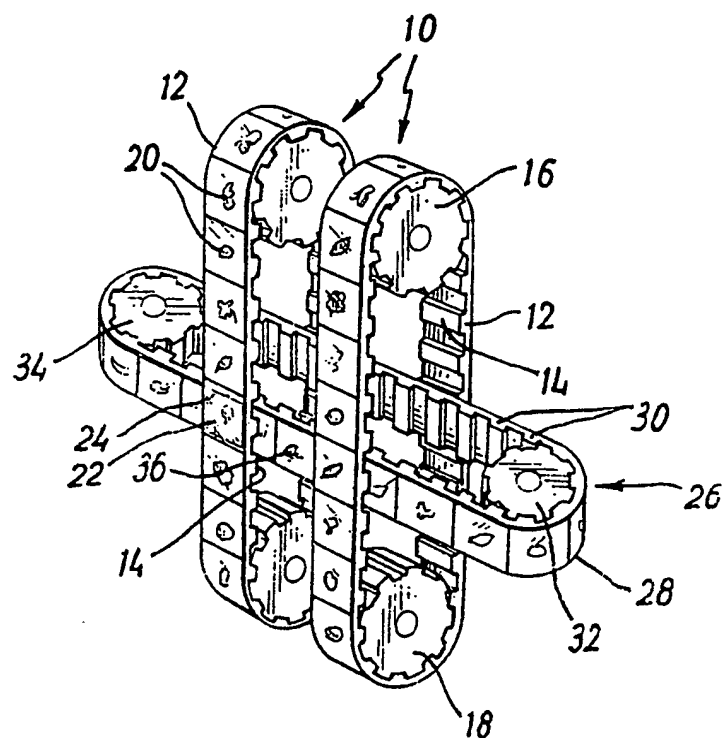
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14. A gaming machine according to any of Claims 10 to 13, characterised in that each belt contains coded information.

15. A gaming machine comprising a plurality of carriers each having a series of symbols thereon, being movably arranged and being adapted to be randomly stopped so as to present randomly selected ones of the symbols at a viewing location, each carrier comprising an endless belt which is wrapped around a pair of sprockets, one of which is driven, the belt providing a substantially straight path between the sprockets which passes through the viewing location.

16. A gaming machine substantially as hereinbefore described with reference to the accompanying drawing.

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INTERNATIONAL SEARCH REPORT

PCT/GB 92/01473

International Application No.

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.Cl. 5 G07F17/34		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	G07F	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	GB,A,2 098 780 (QUESTENCO) 24 November 1982 see the whole document	1-4,7-12
Y	---	5,6
X	DE,A,3 413 990 (TH. BERGMANN) 31 October 1985 see abstract; claims; figures	15
Y	---	5,6
A	GB,A,2 052 823 (J.R. HEYWOOD) 28 January 1981	
A	GB,A,2 067 810 (QUESTENCO) 30 July 1981	
A	GB,A,2 130 413 (SIGMA ENTERPRISES) 31 May 1984	
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IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
08 OCTOBER 1992	26. 10. 92	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE	DAVID J.Y.H.	

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO. GB 9201473
SA 63418

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
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